REMARKS

Further consideration of this application courteously is solicited. Claims 1-7 remain pending and active herein.

Initially, clarifications with respect to the Office Action are necessary. A telephone call was had with the Examiner on December 12, 2008 to discuss these. First, the Examiner confirmed that the September 16, 2008 Action is non-final. There is inconsistency within the Office Action itself with respect to this issue. Although the Summary page indicates that it is final in box 2a), there is no confirmation of this at the conclusion of the Office Action, as customarily is made. Further, the September 16th Action cites and applies new alleged prior art. For these reasons, it is appreciated that the new Action is non-final and that the Examiner will proceed accordingly.

Next, page 2 of the Action appears to state a rejection of claims 1-7 under the first paragraph of 35 U.S.C. § 112. However, at the end of the purported reasons for this rejection, there is a note to the effect that "This rejection in unnecessary. Please remove." It was understood that this note was inserted by a supervisory Examiner and that the purported rejection under 35 U.S.C. § 112 was to have been deleted from the September 16th Action, before the Action was mailed to the undersigned. This also was confirmed by the Examiner. In any event, the undersigned vigorously urges that all of claims 1-7 indeed fully comply with the requirements of U.S.C. § 112.

Attention now is turned to the claims. Claims 1-3, 5, and 6 have been rejected under 35 U.S.C. § 103(a) as purportedly obvious over newly-cited JP4-72727 (hereinafter the '727 disclosure) in view of U.S. Patent No. 5,817,534 to Ye et al. and newly-cited U.S. Patent No. 6,352,591 to Yieh et al. This rejection thus addresses each of independent claims 1, 5, and 6. The rejection is traversed.

In addressing the rejection stated above, reference will be made to numbered paragraphs 8. through 10. in the September 16th Action. Comments within these sections discuss the

Applicants' Declaration under 37 C.F.R. 1.132 (hereinafter Declaration) and assert that such is insufficient to overcome the present rejection of the claims. Applicants and the undersigned respectfully disagree with the stated reasoning.

From the Applicants', and the undersigned's study of the assertions made in numbered paragraphs 8. through 10., there is fear that the Examiner has not apprehended the purpose of the Declaration. The purpose of the Declaration was to establish criticality of Applicants' stated range of cleaning times, as required in each of independent claims 1, 5, and 6. Applicants' stated time range for the cleaning period is up to 0.6 minutes. An important reason why this range is critical is due to the very expensive components to which Applicants' claimed cleaning method is applied. As stated in paragraph 2 of the Declaration, the quartz treatment vessel alone costs about $50,000. Added to this, are other very large costs for each quartz wafer boat used in the vessel. As paragraph 4 of the Declaration reminds, Applicants' claimed cleaning methods involve supply of a mixed HF gas and NH_3 gas that, when injected into the quartz treatment vessel, and also attacks the treatment vessel and other quartz structures, such as the wafer boat, within the vessel. Applicants' claimed cleaning methods minimize the time that the treatment vessel quartz components are exposed to the damaging cleaning gas mixture. Minimization of the exposure time is crucial in preserving the quartz components so that they can be used for a maximum amount of time without need for expensive replacement. The extent of damage to the quartz structures depends solely on the time of exposure. Therefore, Applicants' claimed cleaning period range of up to 0.6 minutes is critical. Contrary to the assertion made in numbered paragraph 8. of the September 16th Action, the facts presented in the Declaration concerning damage to quartz components, and the large costs of such components, are germane to the stated rejection, and indeed directly rebut that rejection.

The September 16th Action admits that the '727 disclosure fails to teach Applicants' required cleaning time period.[1] The Action thus looks to Ye et al. for teaching that it is desirable

[1] Indeed, the Action also admits that the '727 disclosure does not even explicitly teach that HF gas and NH_3 gas are supplied simultaneously as a mixed gas. The Action therefore,

to increase the speed of the cleaning process in order to minimize the time required to clean the vulnerable interior. Based upon this purported reasoning, the Action concludes that one of ordinary skill in the art would have found it obvious to have minimized the cleaning time period to increase throughput and minimize the downtime of the apparatus. This, however, simply does not support a rejection of independent claims 1, 5, and 6 with Applicants' stated, critical time period range. Simply put, none of the '727 disclosure, Ye et al., or Yieh et al. teaches or suggests Applicants' radical reduction of the cleaning time to 0.6 minutes or below as required in each of the independent claims. Nothing in the asserted art, in particular, the Ye et al. patent suggests to those of ordinary skill in the art, any relationship between a particular cleaning time range and damage to vulnerable, highly expensive quartz structures. Applicants' claimed cleaning time is critical. However, nothing in the asserted art approaches any time within that range. As such, the time range, "restraining damage to quartz material present in the quartz structures" as specifically recited in the claims remains untaught and unsuggested by any of the three documents asserted against independent claims 1, 5, and 6. Nothing in those three documents would have anything to offer to those of ordinary skill in the art in the way of protecting vulnerable quartz components in order to vastly prolong the life of such components, and thereby eliminate substantial costs. Over many uses and cleaning processes in the chamber, Applicants' claimed methods, which expressly restrain damage to such quartz structures, result in very important costs savings.

For at least these reasons, the rejections of claims 1-3, 5, and 6 over the '727 disclosure, Ye et al., and Yieh et al. is overcome. Withdrawal of such rejection courteously is suggested.

Lastly, claims 4 and 7 were rejected, likewise under 35 U.S.C. § 103(a) as purportedly obvious over the '727 disclosure, Ye et al., and Yieh et al., further in view of JP08-195381 and

---

without further evidence, asserts in a merely conclusionary way, that it simply "would have been obvious to a person of ordinary skill in the art at the time of the invention to use a single mixed gas of HF gas and NH_3 gas with a reasonable expectation of success." No required evidence is provided in support of this bald assertion.

U.S. Patent No. 6,880,561 to Goto et al. Neither JP08-195381 nor Goto et al. remedies the above-discussed deficiencies of the '727 disclosure, Ye et al., and Yieh et al. with respect to any of independent claims 1, 5, or 6. Hence, this rejection likewise is overcome. Its withdrawal likewise courteously is solicited.

In view of the forgoing remarks, it courteously is urged that all of the claims are allowable and that this application is in condition for allowance. Favorable action in this regard earnestly is solicited.

Respectfully submitted,

SMITH, GAMBRELL & RUSSELL, LLP

By: 

Michael A. Makuch, Reg. No. 32,263
1130 Connecticut Avenue, NW – Suite 1130
Washington, D.C. 20036
Telephone: (202)263-4300
Facsimile: (202) 263-4329

Dated: December 16, 2008